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BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF HAWAII

----- In the Matter of ----- )  
 )  
PUBLIC UTILITIES COMMISSION )  
 )  
Instituting a Proceeding to Investigate the )  
Implementation of Feed-in Tariffs )  
\_\_\_\_\_ )

Docket No. 2008-0273

PUBLIC UTILITIES  
COMMISSION

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SOPOGY  
FINAL STATEMENT OF POSITION  
AND  
CERTIFICATE OF SERVICE

John N. Rei, VP  
Sopogy Inc.  
2660 Waiwai Loop  
Honolulu, HI 96819

(808) 237-2402  
jrei@sopogy.com

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SOPOGY

FINAL STATEMENT OF POSITION

**I. INTRODUCTION**

Sopogy Inc. (Sopogy) respectfully offers its Final Statement of Position regarding the implementation of feed in tariffs for Hawaiian Electric Company, Inc., Maui Electric Company Ltd. and the Hawaii Electric Light Company, Ltd. (collectively: HECO Companies).

Sopogy supports the adoption of the Proposed FiT Schedule which has been developed in a collaborative effort spearheaded by the Blue Planet Foundation to investigate a PBFiT alternative to the HECO/CA proposal. Sopogy believes believe the Proposed FiT is superior to the Straw Proposal in following the core principles of an effective FiT which include:

- access to the power grid for renewable energy producers
- long-term (15-25 years) guaranteed prices for renewable energy, specified by technology, size and location
- the guaranteed purchase of all renewable energy that is for sale
- periodic review of program terms and pricing

As such, Sopogy sees the Proposed FiT as a better choice for facilitating the rapid adoption of renewable energy generation in a manner that strongly supports the Hawaii Clean Energy Initiative ("HCEI") and related state energy objectives and that is in the best long-term

interest of Hawaii's ratepayers. Therefore, Sopogy recommends that the Commission issue a Decision and Order to implement the Proposed Fit.

While the intervener parties and the HECO companies stand far apart on their positions regarding the structure of a feed-in tariff, the parties did reach an agreement regarding a standard term of 20 years for a Schedule FIT Agreement for renewable energy resources. Unfortunately, on most other issues the parties stand far apart on their positions.

Presently, the HECO Straw Proposal envisions PBFITs for smaller systems (500 kW and under for Oahu; 250 kW and under on Maui and the Big Island). This does not set a rapid pace and will likely serve to reduce, if not eliminate, the momentum already gained under the existing Net Metering (NM) program. Sopogy finds HECO's proposed size limits completely inadequate for promoting the deployment of CSP and other renewable technologies throughout the state and suggest the Commission increase the limits dramatically. Based on economic requirements, CSP projects for distributed generation are in the size ranges of 500 kW - 20 MW. As such, Sopogy firmly supports a FiT structure that supports solar project sizes up to 20 MW (based on island – see attached Schedule FIT).

Sopogy supports the efforts made in the attached SCHEDULE FIT document to establish rates across the renewable technology sectors. However, outside of the rates for CSP, Sopogy must defer to those intervener parties with specific expertise as to how these proposed rates were derived.

With regard to solar FiT rates in particular, Sopogy strongly believes that the rates for solar technologies – both PV and CSP – should be equivalent for each island and across the relevant project size ranges. This is because the CSP technologies that are applicable to Hawaii's market are the smaller scale systems commonly referred to as "MicroCSP". The cost structure for MicroCSP more closely parallels that of PV for distributed generation applications than it does that of the "traditional" CSP projects, which tend to be large scale, centralized generation projects of 50 MW sizes and above. Setting equivalent rates will establish a level

playing field amongst the solar technologies within the Hawaii market, which in turn will allow each technology to best compliment Hawaii's renewable energy portfolio based on their unique benefits and operating characteristics

## **II. SOPOGY's FINAL STATEMENT OF POSITION**

### **A. ISSUES**

The following is Sopogy's final statement of position on the issues as stated in the Commission's Order filed on January 20, 2009.

#### **Purpose of Project-Based Feed-In Tariffs ("PBFITs")**

- 1. What, if any, purpose do PBFITs play in meeting Hawaii's clean energy and energy independence goals, given Hawaii's existing renewable energy purchase requirements by utilities?**

##### **SOPOGY's Position.**

Sopogy believes that PBFITs can be an effective tool for encouraging the rapid adoption of renewable energy facilities and systems if the program is designed and implemented in accordance with the fundamental principles of effective feed-in tariff programs as mentioned in Section I above. Successful FiT programs have been implemented throughout the world and have been shown to be one of the most effective policies for encouraging the rapid adoption of renewables onto the utility grid. Both Germany and Spain, in particular, stand out as successful models for such programs. Such a program in Hawaii would play a critical role in meeting Hawaii's clean energy and energy independence goals as outlined in the Hawaii Clean Energy Initiative.

- 2. What are the potential benefits and adverse consequences of PBFITs for the utilities, ratepayers and the State of Hawaii?**

##### **SOPOGY's Position.**

Properly structured and implemented, PBFITs will encourage the rapid adoption of renewables which in turn will provide long-term benefits to the state and the ratepayer through the achievement of energy independence and price stability. Long-term price

savings to the ratepayer are also expected based on the projected rise of fossil fuel prices due to scarcity over time as well as the likely adoption of national policies that would tax carbon emissions from fossil fuel plants.

Potential adverse consequences could include minimal renewable penetration if the PBFiT is not properly structured. This would result in failed policies for the state and for HECO based on agreed upon renewable energy goals, and would leave Hawaii's economy greatly exposed to the volatility of fossil fuel prices. A well structured PBFiT could result in a higher short-term cost to the ratepayer as a means to increase renewable penetration and cover the necessary grid infrastructure and storage upgrades required to achieve the desired levels of renewable energy for the state.

**3. Why is or is not the PBFiT the superior methodology to meet Hawaii's clean energy and energy independence goals?**

SOPOGY's Position.

Sopogy cannot comment as to if the PBFiT is the superior methodology to meet Hawaii's clean energy and energy independence goals. However, appropriately designed and implemented feed-in tariffs have been proven in many locations throughout the world to be effective policies for rapidly changing the energy mix away from fossil fuels and toward renewable energy. When grid access, curtailment, rate structures, sizing and integration issues are properly addressed, the PBFiT can offer an open and transparent mechanism for helping the state realize its renewable energy targets. While a PBFiT may not get the lowest prices, a PBFiT can provide a strong market pull mechanism. Sopogy believes the PBFiT provides a good trade-off as long as the PBFiT does not favor either the most efficient or less efficient projects.

Along with the PBFiT, Sopogy believes that Net Metering also offers an effective mechanism for the adoption of small-scale renewable energy systems at the residential and commercial levels, and that Competitive Bidding should be used for projects above the proposed FiT size limitation of 20 MW.

## **Legal Issues**

### **4. What, if any, modifications are prudent or necessary to existing federal or state laws, rules, regulations or other requirements to remove any barriers or to facilitate the implementation of a feed-in tariff not based on avoided costs?**

#### **SOPOGY's Position.**

At the present time, we see one issue that needs to be addressed in our state law (HRS §269-27.2) regarding payments for wholesale renewable power. Specifically, subsection (c) of HRS §269-27.2) reads as follows:

“In the exercise of its authority to determine the just and reasonable rate for the nonfossil fuel generated electricity supplied to the public utility by the producer, the commission shall establish that the rate for purchase of electricity by a public utility shall not be more than one hundred per cent of the cost avoided by the utility when the utility purchases the electrical energy rather than producing the electrical energy.

Therefore, we support an amendment to HRS §269-27.2 to remove the prohibition of wholesale rates above avoided cost that is included in subsection (c). At the present time, there are two bills (HB 1270 and SB 461 before our legislature to address this issue). We believe if there is a satisfactory treatment of this issue in one of these or other bills, the question of modifications to state law will be rendered moot.

### **5. What evidence must the commission consider in establishing a feed-in tariff and has that evidenced been presented in this investigation?**

#### **SOPOGY's Position.**

The Commission must consider the cost data and impact to ratepayer data in order to properly structure the FiT schedule by size and technology. Sopogy believes existing data and information are potentially available to the Commission under protective order. However, the same level and detail may not be available for all the technologies of interest for PBFiTs.

At the present time, Sopogy supports PBFiTs for the technologies outlined in the attached FiT Schedule. Sopogy also supports addressing project storage options as

part of the feed-in tariff structure as a means to improve grid stability and increase renewable penetration limits on Hawaii's island grid systems.

### **Role of Other Methodologies**

- 6. What role do other methodologies for the utility to acquire renewable energy play with and without a PBFiT, including but not limited to power purchase contracts, competitive bidding, avoided cost offerings and net energy metering.?**

#### **SOPOGY's Position:**

As stated in #3 above, Sopogy believes that PBFiT should be used for projects up to 20 MW in size. Competitive bidding should continue to be used for projects above 20 MW. Net Metering should be continued but without limits on the size of the customer-generator or the system limit.

### **Best design for a PBFiT or alternative method**

- 7. What is the best design, including the cost basis, for PBFiTs or alternative feed-in tariffs to accelerate and increase the development of Hawaii's renewable energy resources and their integration in the utility system?**

#### **SOPOGY's Position.**

SOPOGY is unable to determine the best design for a PBFiT without first knowing the existing and future renewable penetration limits possible on the HECO grids. However, in an effort to move the process forward, Sopogy has participated in a collaborative effort spearheaded by the Blue Planet Foundation to investigate a PBFiT alternative to the HECO/CA proposal. Sopogy fully supports this alternative FiT Schedule, attached at the end of this position paper, over the Straw FiT. The FiT Schedule includes an appropriate set of technologies with proposed island-specific payment rates over a range of facility sizes, and detailed terms and conditions.

### **Eligibility Requirements**

- 8. What renewable energy projects should be eligible for which renewable electricity purchase methods or individual tariffs and when?**

#### **SOPOGY's Position.**

The FiT Schedule attached at the end of this paper outlines the technologies and project sizes that should be eligible for the FiT at the start of this program. The FiT Schedule is designed to be implemented upon the Commission Decision and Order.

### **Analysis of the cost to consumers and appropriateness of caps**

#### **9. What is the cost to consumers and others of the proposed feed-in tariffs?**

##### **SOPOGY's Position.**

At this time the necessary economic data has not been submitted that would allow Sopogy to identify the cost of the proposed feed-in tariff to consumers and others.

#### **10. Should the commission impose caps based upon these financial effects, technical limitations or other reasons on the total amount purchased through any mechanism or tariff?**

##### **SOPOGY's Position.**

More data is required on current and future grid capacity as well as projected renewable growth in the market prior to making any decisions to impose caps. However, it is clear that for a PBFiT to accomplish Hawaii's clean energy goals that any possible cap must be set in a manner that encourages grid upgrades to infrastructure and storage so as to increase overall renewable penetration levels.

### **Procedural Issues**

#### **11. What process should the commission implement for evaluating, determining and updating renewable energy power purchase mechanisms or tariffs?**

##### **SOPOGY's Position.**

Regarding the PBFiT, we recommend that the utility be required to issue periodic reports on the number and status of PBFiT applications. We also recommend that the commission conduct an initial review of the PBFiTs at the one year point with the intent of having any desired changes take effect at the 2 year point, and to then conduct ongoing reviews with necessary changes made every two years thereafter.

#### **12. What are the administrative impacts to the commission and the parties of the proposed approach?**



SOPOGY's Position.

Sopogy believes that the implementation of PBFiT could significantly reduce the project development costs for renewable energy companies doing business in Hawaii. Regarding administrative impacts to the commission, Sopogy believes it wise to continue their consultant agreement with NRRI to help "Operate and Maintain" the PBFiT. We leave it to the commission to determine whether or not additional staff is required.

**B. CONCLUSION**

Sopogy believes that a well crafted PBFiT is an excellent tool to encourage the rapid deployment of renewable energy projects throughout the state as a means to help achieve Hawaii's clean energy goals, including energy independence and price stability. Based on the factors covered in this paper, Sopogy strongly favors the implementation of the Proposed FiT over the Straw FiT.

DATED: March 30, 2009, Honolulu, Hawaii

  
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John N. Rei  
VP Technology & Strategic Supply, SOPOGY

## SCHEDULE FIT

### Feed-in Tariff – Purchases from Renewable Energy Generating Facilities

#### Definitions:

For the purposes of this Schedule:

- (1) "Biogas" means a gaseous fuel produced by anaerobic decomposition of organic matter.
- (2) "Biomass" means aquatic or terrestrial plant material, vegetation, or agricultural waste, originating in the State of Hawaii, used as a fuel or energy source.
- (3) "Company" means Hawaiian Electric Company, Inc.
- (4) "Concentrating Solar Power Facility" means a Renewable Energy Generating Facility that uses mirrors to concentrate the sun's heat in order to generate electricity.
- (5) "Electrical Capacity" means the installed maximum potential alternating-current electricity generating capacity, in kilowatts, of a Renewable Energy Generating Facility.
- (6) "Hybrid Facility" means a Renewable Energy Generating Facility that generates electricity from two or more Renewable Energy Sources.
- (7) "Hydropower" means the energy of moving water, including wave energy, ocean thermal energy conversion, and tidal energy.
- (8) "Non-Wood-Burning Generating Facility" means a Renewable Energy Generating Facility that generates electricity from Biomass and that is not a Wood-Burning Generating Facility.
- (9) "Offshore Wind Generating Facility" means a Wind Generating Facility that is located in an ocean water depth of at least 20 meters.
- (10) "Onshore Wind Generating Facility" means any Wind Generating Facility that is not an Offshore Wind Generating Facility.
- (11) "Photovoltaic Generating Facility" means a Renewable Energy Generating Facility that generates electricity from sunlight.
- (12) "Renewable Energy" means electricity generated by a Renewable Energy Generating Facility from a Renewable Energy Source.
- (13) "Renewable Energy Generating Facility" means any identifiable facility, plant, installation, project, equipment, apparatus, or the like, located in the State of Hawaii, placed in service after the effective date of this Schedule, and that generates Renewable Energy from a Renewable Energy Source.

- (14) "Renewable Energy Generator" means any person that owns, controls, operates, manages, or uses a Renewable Energy Generating Facility to produce Renewable Energy from a Renewable Energy Source.
- (15) "Renewable Energy Source" means the following sources of energy:
- (a) Biomass;
  - (b) Biogas;
  - (c) Geothermal Energy;
  - (d) Landfill Gas;
  - (e) Sewage Treatment Plant Gas;
  - (f) Hydropower;
  - (g) Solar Radiation;
  - (h) Wind.
- (16) "Wood-Burning Generating Facility" means a Renewable Energy Generating Facility that burns wood to generate electricity.
- (17) "Wind Generating Facility" means a Renewable Energy Generating Facility that generates electricity from Wind.

#### Interconnection

At the request of a Renewable Energy Generator that places a Renewable Energy Generating Facility in service, the Company shall interconnect such Renewable Energy Generating Facility to the electric system of the Company, provided that technical requirements set forth in the Company's Rules relating to interconnection of generating facilities with the Company's electric system, as approved by the Public Utilities Commission, are met. Costs incurred by the Company to meet technical requirements of interconnection shall be allocated so that those costs that benefit a Renewable Energy Generating Facility are borne by the Renewable Energy Generator that uses the Renewable Energy Generating Facility to produce Renewable Energy, in conformity with orders of the Public Utilities Commission relating to distributed generation in the State of Hawaii. Each of the Company and the Renewable Energy Generator shall disclose to the other, within 6 weeks of a request by the other, any and all data, relating to the electric system of the Company or the Renewable Energy Generating Facility of the Renewable Energy Generator, necessary to plan and execute such interconnection in conformity with such technical requirements.

A Renewable Energy Generating Facility shall be designed to operate in parallel with the Company's electric system without adversely affecting the operations of its customers and without presenting safety hazards to personnel of the Company or its customers. The Renewable Energy Generator shall furnish, install, operate and maintain facilities such as relays, switches, synchronizing equipment, monitoring equipment and control and protective devices designated by the Company and specified in the standard Schedule FIT Agreement ("Schedule FIT Agreement") as suitable for parallel operation with the electric system of the Company. The Renewable Energy Generating Facility and systems interconnecting the Renewable Energy Generating Facility with the Company's electric system must be in compliance with all applicable safety and performance standards of the National Electric Code (NEC), the Institute of Electrical and Electronics Engineers (IEEE), and the Company's requirements for distributed generation interconnected with the Company's electric system as provided in the Company's Rules, and subject to any other requirements, including payments, as provided in the Schedule FIT Agreement.

Requests to interconnect a Renewable Energy Generating Facility in parallel with the Company's electric system will be processed in accordance with the procedures in Appendix II.

Schedule FIT Agreement:

The Company shall offer a Schedule FIT Agreement, in the form provided in Appendix I, to any Renewable Energy Generator that requests interconnection of a Renewable Energy Generating Facility to the electric system of the Company under this Schedule. Each such Schedule FIT Agreement shall oblige the Company to purchase and pay for all Renewable Energy generated by the Renewable Energy Generating Facility and delivered to the electric system of the Company, and to purchase and pay for all Renewable Energy that would be generated by the Renewable Energy Generating Facility and delivered to the electric system of the Company but for curtailment by the Company of generation or delivery of Renewable Energy by the Renewable Energy Generating Company, and shall oblige the Company to purchase and pay for all such Renewable Energy at the feed-in tariff rate of compensation (in cents per kilowatt-hour) set forth in this Schedule. The Company shall compensate the Renewable Energy Generator for such Renewable Energy in an amount no less than the number of kilowatt-hours of such Renewable Energy multiplied by such rate of compensation.

With respect to Renewable Energy generated by a Hybrid Facility and delivered to the electric system of the Company, each such Schedule FIT Agreement shall oblige the Company to take all such Renewable Energy, and shall oblige the Company to purchase and pay for such Renewable Energy generated by the Hybrid Facility from each Renewable Energy Source at the feed-in tariff rate of compensation (in cents per kilowatt-hour) for such Renewable Energy set forth in this Schedule.

Procedures for requesting and executing a Schedule FIT Agreement are provided in Appendix II to this Schedule.

Metering:

The Company, at its expense, shall install a meter to record the flow of Renewable Energy delivered to the electric system of the Company. The Renewable Energy Generator shall, at its expense, provide, install and maintain all conductors, service switches, fuses, meter sockets, meter instrument transformer housing and mountings, switchboard meter test buses, meter panels and similar devices required for service connection and meter installations on the premises of the Renewable Energy Generating Facility in accordance with the Company's Rules.

Any energy delivered to a Renewable Energy Generator by the Company will be metered separately from any Renewable Energy delivered by the Renewable Energy Generator to the Company, either by use of multiple meters or a meter capable of separately recording the net inflow and outflow of electricity.

Purchase of Renewable Energy Delivered by a Renewable Energy Generator to the Company:

The Company shall pay for each kilowatt-hour ("kWh") of Renewable Energy delivered to the Company by a Renewable Energy Generator as follows.

| Renewable Energy Source: Biomass                             |                             |
|--|-----------------------------|
| Wood-Burning Generating Facility<br>Electrical Capacity (kW) | Feed-in Tariff Rate (¢/kWh) |
| ≤ 150 kW   | 17.18                       |
| > 150 kW and ≤ 500 kW  | 13.51                       |
| > 500 kW and ≤ 5000 kW                                       | 12.18                       |
| > 5000 kW  | 11.45                       |

| Renewable Energy Source: Biomass                                 |                             |
|--|-----------------------------|
| Non-Wood-Burning Generating Facility<br>Electrical Capacity (kW) | Feed-in Tariff Rate (¢/kWh) |
| ≤ 150 kW   | 28.00                       |
| > 150 kW and ≤ 500 kW  | 24.00                       |
| > 500 kW and ≤ 5000 kW   | 22.00                       |
| > 5000 kW  | 21.00                       |

| Renewable Energy Source: Biogas                                  |                             |
|--|-----------------------------|
| Renewable Energy Generating Facility<br>Electrical Capacity (kW) | Feed-in Tariff Rate (¢/kWh) |
| ≤ 150 kW   | 17.18                       |
| > 150 kW and ≤ 500 kW  | 13.51                       |
| > 500 kW and ≤ 5000 kW   | 12.18                       |
| > 5000 kW and ≤ 20000 kW   | 11.45                       |

| Renewable Energy Source: Geothermal Energy                       |                             |
|--|-----------------------------|
| Renewable Energy Generating Facility<br>Electrical Capacity (kW) | Feed-in Tariff Rate (¢/kWh) |
| ≤ 10000 kW   | 23.49                       |
| > 10000 kW   | 15.41                       |

| Renewable Energy Source: Landfill Gas or Sewage Treatment Plant Gas |                             |
|---|-----------------------------|
| Renewable Energy Generating Facility<br>Electrical Capacity (kW)    | Feed-in Tariff Rate (¢/kWh) |
| ≤ 500 kW  | 13.21                       |
| > 500 kW and ≤ 5000 kW  | 9.10                        |

| Renewable Energy Source: Hydropower                              |                             |
|--|-----------------------------|
| Renewable Energy Generating Facility<br>Electrical Capacity (kW) | Feed-in Tariff Rate (¢/kWh) |
| ≤ 500 kW   | 18.60                       |
| > 500 kW and ≤ 2000 kW   | 12.70                       |
| > 2000 kW and ≤ 5000 kW  | 11.23                       |
| > 5000 kW and ≤ 10000 kW   | 8.62                        |
| > 10000 kW and ≤ 20000 kW  | 7.93                        |
| > 20000 kW and ≤ 50000 kW  | 5.86                        |
| > 50000 kW   | 4.70                        |

| Renewable Energy Source: Solar Radiation  |                             |
|---|-----------------------------|
| Photovoltaic Generating Facility<br>Located on Oahu<br>Electrical Capacity (kW) | Feed-in Tariff Rate (¢/kWh) |
| ≤ 10 kW   | 47.9                        |
| ≥ 10 kW and ≤ 100 kW  | 43.6                        |
| ≥ 100 kW and ≤ 500 kW   | 39.6                        |
| ≥ 500 kW and ≤ 5000 kW  | 36.3                        |
| ≥ 5000 kW   | 33.0                        |

| Renewable Energy Source: Solar Radiation  |                             |
|---|-----------------------------|
| Photovoltaic Generating Facility<br>Located on Maui<br>Electrical Capacity (kW) | Feed-in Tariff Rate (¢/kWh) |
| ≤ 10 kW   | 52.7                        |
| ≥ 10 kW and ≤ 100 kW  | 47.9                        |
| ≥ 100 kW and ≤ 500 kW   | 43.6                        |
| ≥ 500 kW and ≤ 5000 kW  | 39.9                        |
| ≥ 5000 kW   | 36.3                        |

| Renewable Energy Source: Solar Radiation   |                             |
|--|-----------------------------|
| Photovoltaic Generating Facility<br>Located on Molokai<br>Electrical Capacity (kW) | Feed-in Tariff Rate (¢/kWh) |
| ≤ 10 kW  | 57.5                        |
| ≥ 10 kW and ≤ 100 kW   | 52.3                        |
| ≥ 100 kW and ≤ 500 kW  | 47.5                        |
| ≥ 500 kW and ≤ 5000 kW   | 43.6                        |

| Renewable Energy Source: Solar Radiation   |                             |
|--|-----------------------------|
| Photovoltaic Generating Facility<br>Located on Lanai<br>Electrical Capacity (kW) | Feed-in Tariff Rate (¢/kWh) |
| ≤ 10 kW  | 57.5                        |
| ≥ 10 kW and ≤ 100 kW   | 52.3                        |
| ≥ 100 kW and ≤ 500 kW  | 47.5                        |
| ≥ 500 kW and ≤ 5000 kW   | 43.6                        |

| Renewable Energy Source: Solar Radiation  |                             |
|---|-----------------------------|
| Photovoltaic Generating Facility<br>Located on Hawaii<br>Electrical Capacity (kW) | Feed-in Tariff Rate (¢/kWh) |
| ≤ 10 kW   | 53.7                        |
| ≥ 10 kW and ≤ 100 kW  | 48.8                        |

|                                  |      |
|----------------------------------|------|
| $\geq 100$ kW and $\leq 500$ kW  | 44.4 |
| $\geq 500$ kW and $\leq 5000$ kW | 40.7 |
| $\geq 5000$ kW                   | 37.0 |

| Renewable Energy Source: Solar Radiation              |                                    |
|---|------------------------------------|
| Concentrating Solar Power Facility<br>Located on Oahu |                                    |
| <u>Electrical Capacity (kW)</u>                       | <u>Feed-in Tariff Rate (¢/kWh)</u> |
| $\leq 500$ kW   | 39.6                               |
| $> 500$ kW and $\leq 5000$ kW                         | 36.3                               |
| $> 5000$ kW and $\leq 10000$ kW                       | 33.0                               |
| $> 10000$ kW and $\leq 20000$ kW                      | 30.0                               |

| Renewable Energy Source: Solar Radiation              |                                    |
|---|------------------------------------|
| Concentrating Solar Power Facility<br>Located on Maui |                                    |
| <u>Electrical Capacity (kW)</u>                       | <u>Feed-in Tariff Rate (¢/kWh)</u> |
| $\leq 500$ kW   | 43.6                               |
| $> 500$ kW and $\leq 5000$ kW                         | 39.9                               |
| $> 5000$ kW and $\leq 10000$ kW                       | 36.3                               |
| $> 10000$ kW and $\leq 20000$ kW                      | 34.3                               |

| Renewable Energy Source: Solar Radiation                 |                                    |
|--|------------------------------------|
| Concentrating Solar Power Facility<br>Located on Molokai |                                    |
| <u>Electrical Capacity (kW)</u>                          | <u>Feed-in Tariff Rate (¢/kWh)</u> |
| $\leq 500$ kW  | 47.5                               |
| $> 500$ kW and $\leq 5000$ kW                            | 43.6                               |

| Renewable Energy Source: Solar Radiation               |                                    |
|--|------------------------------------|
| Concentrating Solar Power Facility<br>Located on Lanai |                                    |
| <u>Electrical Capacity (kW)</u>                        | <u>Feed-in Tariff Rate (¢/kWh)</u> |
| $\leq 500$ kW  | 47.5                               |
| $> 500$ kW and $\leq 5000$ kW                          | 43.6                               |

| Renewable Energy Source: Solar Radiation                |                                    |
|---|------------------------------------|
| Concentrating Solar Power Facility<br>Located on Hawaii |                                    |
| <u>Electrical Capacity (kW)</u>                         | <u>Feed-in Tariff Rate (¢/kWh)</u> |
| $\leq 500$ kW   | 44.4                               |
| $> 500$ kW and $\leq 5000$ kW                           | 40.7                               |
| $> 5000$ kW and $\leq 10000$ kW                         | 37.0                               |
| $> 10000$ kW and $\leq 20000$ kW                        | 35.0                               |

| Renewable Energy Source: Wind  |                                    |
|--|------------------------------------|
| Onshore Wind Generating Facility<br>Located on Oahu<br><u>Electrical Capacity (kW)</u> | <u>Feed-in Tariff Rate (¢/kWh)</u> |
| ≤ 10 kW  |                                    |
| > 10 kW and ≤ 50 kW  |                                    |
| > 50 kW and ≤ 250 kW   |                                    |
| > 250 kW and ≤ 500 kW  |                                    |
| > 500 kW and ≤ 1000 kW   |                                    |
| > 1000 kW and ≤ 2500 kW  |                                    |
| > 2500 kW and ≤ 5000 kW  |                                    |
| > 5000 kW and ≤ 20000 kW   |                                    |

| Renewable Energy Source: Wind  |                                    |
|--|------------------------------------|
| Onshore Wind Generating Facility<br>Located on Maui<br><u>Electrical Capacity (kW)</u> | <u>Feed-in Tariff Rate (¢/kWh)</u> |
| ≤ 10 kW  |                                    |
| > 10 kW and ≤ 50 kW  |                                    |
| > 50 kW and ≤ 250 kW   |                                    |
| > 250 kW and ≤ 500 kW  |                                    |
| > 500 kW and ≤ 1000 kW   |                                    |
| > 1000 kW and ≤ 2500 kW  |                                    |
| > 2500 kW and ≤ 5000 kW  |                                    |
| > 5000 kW and ≤ 20000 kW   |                                    |

| Renewable Energy Source: Wind   |                                    |
|---|------------------------------------|
| Onshore Wind Generating Facility<br>Located on Molokai<br><u>Electrical Capacity (kW)</u> | <u>Feed-in Tariff Rate (¢/kWh)</u> |
| ≤ 10 kW   |                                    |
| > 10 kW and ≤ 50 kW   |                                    |
| > 50 kW and ≤ 250 kW  |                                    |
| > 250 kW and ≤ 500 kW   |                                    |
| > 500 kW and ≤ 1000 kW  |                                    |
| > 1000 kW and ≤ 2500 kW   |                                    |
| > 2500 kW and ≤ 5000 kW   |                                    |
| > 5000 kW and ≤ 20000 kW  |                                    |

| Renewable Energy Source: Wind   |                                    |
|---|------------------------------------|
| Onshore Wind Generating Facility<br>Located on Lanai<br><u>Electrical Capacity (kW)</u> | <u>Feed-in Tariff Rate (¢/kWh)</u> |
| ≤ 10 kW   |                                    |
| > 10 kW and ≤ 50 kW   |                                    |
| > 50 kW and ≤ 250 kW  |                                    |
| > 250 kW and ≤ 500 kW   |                                    |
| > 500 kW and ≤ 1000 kW  |                                    |



|                          |  |
|--------------------------|--|
| > 1000 kW and ≤ 2500 kW  |  |
| > 2500 kW and ≤ 5000 kW  |  |
| > 5000 kW and ≤ 20000 kW |  |

| Renewable Energy Source: Wind  |                                    |
|--|------------------------------------|
| Onshore Wind Generating Facility<br>Located on Hawaii<br><u>Electrical Capacity (kW)</u> | <u>Feed-in Tariff Rate (¢/kWh)</u> |
| ≤ 10 kW  |                                    |
| > 10 kW and ≤ 50 kW  |                                    |
| > 50 kW and ≤ 250 kW   |                                    |
| > 250 kW and ≤ 500 kW  |                                    |
| > 500 kW and ≤ 1000 kW   |                                    |
| > 1000 kW and ≤ 2500 kW  |                                    |
| > 2500 kW and ≤ 5000 kW  |                                    |
| > 5000 kW and ≤ 20000 kW   |                                    |

| Renewable Energy Source: Wind                                       |                                    |
|---|------------------------------------|
| Offshore Wind Generating Facility<br><u>Years of Agreement Term</u> | <u>Feed-in Tariff Rate (¢/kWh)</u> |
| Years 1 through 12  |                                    |
| Years 13 through 20   |                                    |

The Commission shall periodically adjust the Schedule FIT feed-in tariff rates of compensation in accordance with the procedures provided in Appendix III of this Schedule. The Renewable Energy Generator shall receive the feed-in tariff rate of compensation in effect at the time of execution of the Schedule FIT Agreement for the entire term of the Schedule FIT Agreement.

#### Term of Schedule FIT Agreement:

The term of the Schedule FIT Agreement will be as follows, commencing on the initial delivery of Renewable Energy under the Schedule FIT Agreement from the Renewable Energy Generator to the Company:

| <u>Renewable Energy Source</u> | <u>Term of Agreement</u> |
|--------------------------------|--------------------------|
| Biomass                        | 20 years                 |
| Biogas                         | 20 years                 |
| Geothermal Energy              | 20 years                 |
| Landfill Gas                   | 20 years                 |
| Sewage Treatment Plant Gas     | 20 years                 |
| Hydropower                     | 20 years                 |
| Solar Radiation                | 20 years                 |
| Wind                           | 20 years                 |

#### Net Energy Metering

A Renewable Energy Generator that is eligible to enter into a net energy metering agreement with the Company shall have a choice of either (1) entering into a net energy

metering agreement with the Company, or (2) entering into a Schedule FIT Agreement with the Company.

#### Penetration Limits for Intermittent Renewable Energy Sources

The obligations of the Company to interconnect a Renewable Energy Generating Facility to the Company's electric system and to offer an Schedule FIT Agreement to a Renewable Energy Generator to purchase and pay for Renewable Energy at a feed-in tariff rate of compensation under this Schedule shall not apply with respect to Renewable Electricity produced by a Renewable Energy Generating Facility that is (i) a Wind Generating Facility, and that is placed in service after December 31 of the year following the year during which the aggregate Electrical Capacity of Renewable Energy Generating Facilities that are Wind Generating Facilities as to which technical requirements for interconnection have been met equals or exceeds 25 per cent of the peak demand for such electrical system, provided that the Public Utilities Commission may increase, by rule or order, such aggregate Electrical Capacity limit above 25 per cent of such peak demand, or (ii) a Photovoltaic Generating Facility or a Concentrating Solar Generating Facility, and that is placed in service after December 31 of the year following the year during which the aggregate Electrical Capacity of Renewable Energy Generating Facilities that are Photovoltaic Generating Facilities or Concentrating Solar Generating Facilities as to which technical requirements for interconnection have been met equals or exceeds 20 per cent of the peak demand for such electrical system, provided that the Public Utilities Commission may increase, by rule or order, such aggregate Electrical Capacity limit above the above-referenced 25 per cent and 20 per cent peak demands.

#### Queuing Procedures:

Requests for interconnection of Renewable Energy Generating Facilities under this Schedule shall be administered on a first-ready, first-to-interconnect basis, modeled after the queuing procedures adopted by the Midwest Independent Transmission System Operator, Inc. See Midwest Independent Transmission System Operator ("Midwest ISO"), Generator Interconnection Process Tariff (August 25, 2008) [http://www.midwestmarket.org/publish/Document/25f0a7\\_11c1022c619\\_7d600a48324a/Attachment%20X%20GIP.pdf?action=download&property=Attachment;Midwest ISO, Business Practices Manual: Generator Interconnection](http://www.midwestmarket.org/publish/Document/25f0a7_11c1022c619_7d600a48324a/Attachment%20X%20GIP.pdf?action=download&property=Attachment;Midwest%20ISO,%20Business%20Practices%20Manual%20-%20Generator%20Interconnection) (Manual No. 15, TP-BPM-004-r2, January 6, 2009) [http://www.midwestmarket.org/publish/Document/45e84c\\_11cdc615aa1\\_7e010a48324a](http://www.midwestmarket.org/publish/Document/45e84c_11cdc615aa1_7e010a48324a).

#### Renewable Energy Certificates:

Any certificate, credit, allowance, green tag, or other transferable indicia or environmental attribute, verifying the generation of a particular quantity of energy from a Renewable Energy Source, indicating the generation of a specific quantity of Renewable Energy by a Renewable Energy Generating Facility, or indicating a Renewable Energy Generator's ownership of any environmental attribute associated with such generation, is the property of the Renewable Energy Generator and freely assignable by the Renewable Energy Generator.

CERTIFICATE OF SERVICE

The foregoing SOPOGY Response was served on the date of filing by Hand Delivery or electronically transmitted to each such Party as follows.

CATHERINE P. AWAKUNI  
EXECUTIVE DIRECTOR  
DEPT OF COMMERCE & CONSUMER AFFAIRS  
DIVISION OF CONSUMER ADVOCACY  
P.O. Box 541  
Honolulu, Hawaii 96809

2 Copies  
Via Hand Delivery

DEAN MATSUURA  
MANAGER  
REGULATORY AFFAIRS  
HAWAIIAN ELECTRIC COMPANY, INC.  
P.O. Box 2750  
Honolulu, HI 96840-0001

Electronically transmitted

JAY IGNACIO  
PRESIDENT  
HAWAII ELECTRIC LIGHT COMPANY, INC.  
P. O. Box 1027  
Hilo, HI 96721-1027

Electronically transmitted

EDWARD L. REINHARDT  
PRESIDENT  
MAUI ELECTRIC COMPANY, LTD.  
P. O. Box 398  
Kahului, HI 96732

Electronically transmitted

THOMAS W. WILLIAMS, JR., ESQ.  
PETER Y. KIKUTA, ESQ.  
DAMON L. SCHMIDT, ESQ.  
GOODSILL, ANDERSON QUINN & STIFEL  
Alii Place, Suite 1800  
1099 Alakea Street  
Honolulu, Hawaii 96813

Electronically transmitted

ROD S. AOKI, ESQ.  
ALCANTAR & KAHL LLP  
120 Montgomery Street  
Suite 2200  
San Francisco, CA 94104

Electronically transmitted

MARK J. BENNETT, ESQ.  
DEBORAH DAY EMERSON, ESQ.  
GREGG J. KINKLEY, ESQ.  
DEPARTMENT OF THE ATTORNEY GENERAL  
425 Queen Street  
Honolulu, Hawaii 96813  
Counsel for DBEDT

Electronically transmitted

CARRIE K.S. OKINAGA, ESQ.  
GORDON D. NELSON, ESQ.  
DEPARTMENT OF THE CORPORATION COUNSEL  
CITY AND COUNTY OF HONOLULU  
530 South King Street, Room 110  
Honolulu, Hawaii 96813

Electronically transmitted

LINCOLN S.T. ASHIDA, ESQ.  
WILLIAM V. BRILHANTE JR., ESQ.  
MICHAEL J. UDOVIC, ESQ.  
DEPARTMENT OF THE CORPORATION COUNSEL  
COUNTY OF HAWAII  
101 Aupuni Street, Suite 325  
Hilo, Hawaii 96720

Electronically transmitted

MR. RILEY SAITO  
THE SOLAR ALLIANCE  
73-1294 Awakea Street  
Kailua-Kona, Hawaii 96740

Electronically transmitted

MR. CARL FREEDMAN  
HAIKU DESIGN & ANALYSIS  
4234 Hana Highway  
Haiku, Hawaii 96708

Electronically transmitted

MR. THEODORE E. ROBERTS  
SEMPRA GENERATION  
101 Ash Street, HQ 12  
San Diego, California 92101

Electronically transmitted

MR. ERIK KVAM  
CHIEF EXECUTIVE OFFICER  
ZERO EMISSIONS LEASING LLC  
2800 Woodlawn Drive, Suite 131  
Honolulu, Hawaii 96822

Electronically transmitted

WARREN S. BOLLMEIER II, PRESIDENT  
HAWAII RENEWABLE ENERGY ALLIANCE  
46-040 Konane Place 3816  
Kaneohe, HI 96744


Electronically transmitted

GERALD A. SUMIDA, ESQ.  
TIM LUI-KWAN, ESQ.  
NATHAN C. NELSON, ESQ.  
CARLSMITH BALL LLP  
ASB Tower, Suite 2200  
1001 Bishop Street  
Honolulu, Hawaii 96813  
Counsel for HAWAII HOLDINGS, LLC, dba FIRST WIND HAWAII

Electronically transmitted

MR. CHRIS MENTZEL  
CHIEF EXECUTIVE OFFICER  
CLEAN ENERGY MAUI LLC  
619 Kupulau Drive  
Kihei, Hawaii 96753

Electronically transmitted

  
DATED: Honolulu, Hawaii, March 30, 2009